Figure 3 shows a block diagram of an arrangement for compensation measurements.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0024] Figure 1 shows an outline illustration of the arrangement which is required to carry out the method. A primary electrical conductor 1 of a DC network is passed through an iron core 2 of the direct current transformer. The iron core 2 is provided with an air gap 3 in which a magnetic field sensor 4 is accommodated. A secondary winding 5 is fitted to the iron core 2, and its current supplies the signal to be evaluated. The current signal is integrated in an integration circuit, which is not shown here, and then supplies a model of the primary direct current I_{Prim}.

[0025] In order to adjust the integrated current value, a second current measurement is carried out with the aid of the magnetic field sensor 4. For this purpose, the current measurement process carried out until that point in time is briefly interrupted and a linear-rising compensation current I_{sec} is fed into the secondary winding 5 until the output signal I_I of the magnetic field sensor 4 reaches a reversal point or a polarization change, as is shown in figure 2. The compensation current I_{sec}, multiplied by the number of turns w, corresponds to the primary direct current I_{Prim} to be measured. The current value, which was previously determined by means of integration, is now corrected using this measured value.

[0026] Figure 3 shows one option for obtaining the field measurement in the iron core 2. The secondary winding 5 is in this case used as a compensation winding. The illustration shows only operation during the compensation phase. The secondary winding 5 is connected to a controllable DC source 6 which, for

[0027] A balanced alternating current, which is supplied from an AC source 8, is fed into an indicator winding 7. The voltage across the indicator winding 7 is measured. In the positive half-cycle, the positive peak value is stored in a peak-value store 9, and in the negative half-cycle, the negative peak value is stored in a peak-value store 10. Capacitors, for example, are suitable for use as the peak-value stores. The two values are then compared in a comparator 11.

[0028] If the comparator value is not equal to zero, this means that the voltage is unbalanced, owing to the magnetic characteristics of the iron core 2 which has been premagnetized by the primary current I_{Prim}.

[0029] If the comparator value is zero, then the measured AC voltage across the indicator winding 7 is balanced. This is therefore a measure that the magnetic field in the iron core is zero, that is to say the primary direct current I_{Prim} has been compensated. The current I_{sec} in the secondary winding 5 is, at this instant, a measure of the primary direct current I_{Prim}. The value is retained in order to use it subsequently to correct the current value obtained using the integration method. The integration process and the current value correction can be expediently carried out digitally in a microprocessor, for example, which is not shown here. For use in a trigger circuit of a DC switching device, the trigger circuit can in any case, already be equipped with a microprocessor, for example, which can also be used for this purpose.

[0030] The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended [illegible]